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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/499,229      | 02/07/2000  | Toshio Nakakuki      | 2933SE-90           | 9948             |

22442 7590 01/27/2005

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EXAMINER

HENN, TIMOTHY J

| ART UNIT | PAPER NUMBER |
|----------|--------------|
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2612

DATE MAILED: 01/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/499,229

Applicant(s)

NAKAKUKI ET AL.

Examiner

Timothy J Henn

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 October 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☒ Claim(s) 10 and 11 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 27 October 2004 has been entered.

### ***Response to Arguments***

2. Applicant's arguments filed 27 October 2004 have been fully considered but they are not persuasive.

Applicant argues that Masanaga fails to disclose generating a timing control signal defining a predetermined exposure period and further argues that Mochizuki fails to cure the supposed deficiencies in Masanaga. The examiner notes that both Masanaga and Mochizuki are concerned with changing an exposure time period for which an image sensing device is exposed. Masanaga generates various types of exposure information depending on threshold levels and performs exposure control "by adjusting the f-stop value and shutter speed" (c. 7, ll. 29-31). Masanaga also discloses that an electronic shutter can be used to control the exposure time (c. 5, ll. 16-18). In such a system when the shutter speed (i.e. exposure time) is changed, new timing signals will inherently be generated to control the imaging device as claimed.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 1-8 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

**[claims 1-8]**

Claims 1-8 as amended require the timing control circuit to receive selected exposure information and generate timing signals in accordance with the exposure information, wherein the timing signal defines "the predetermined exposure period". However, it is noted that in the instant invention timing signals are generated which define new exposure periods (see Figure 4). Generating a fixed exposure period (i.e. "the predetermined exposure period") which is "in accordance with the selected exposure information" in all cases as claimed in claims 1-8 is not fully enabled by the specification. The examiner notes that if claim 1 were amended to read "a timing control circuit, connected to the driver, for receiving the exposure information selected by the selection circuit and generating a new timing signal in accordance with the selected exposure information, wherein the new timing signal defines a new exposure

period", the claim would correspond to the instant invention described in the specification and Figure 4.

***Claim Rejections - 35 USC § 103***

5. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

6. Claims 1, 4, 6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masanaga et al. (US 5,115,269) in view of Mochizuki et al. (US 5,793,422).

**[claim 1]**

In regard to claim 1, note that Masanaga et al. discloses a solid-state imaging apparatus comprising a solid-state imaging sensor for accumulating information charges corresponding to an image of an object and generating an image signal in response to the information charges (Figure 1, Items 33, 34 );

a driver, connected to the image sensor in accordance with a timing signal so that the information charges are accumulated in a predetermined exposure period, and for outputting the image signal from the image sensor (Figure 1, Item 10; The office notes that although Masanaga et al. does not specifically disclose the generation of timing signals, it is inherent that the image sensor is driven by various timing signals);

a first exposure information generating circuit for producing first exposure information (Figure 1, Items 10, 33 and Av; Figure 5, Item 59);

a second exposure information generating circuit for calculating second exposure information (Figure 1, Items 10, 33, 35, Av and Sp; Figure 5, Item 55);

a selection circuit, connected to the first and second exposure information generating circuits, for selecting the first exposure information when the level of the image signal is outside of the predetermined range (Figure 1, Item 10; Figure 5, Item 52; The office notes that the predetermined range of Masanaga et al. is defined as average luminance levels from the second threshold level to infinity);

and a timing control circuit, connected to the driver, for receiving the exposure information selected by the selection circuit and generating the timing signal therefrom in accordance with the selected exposure information (Figure 1, Item 10; The office notes that Masanaga et al. discloses that electronic shuttering processes can be used, and that by using such a system the image sensor would be controlled by the control unit (Column 5, Lines 16-18) to generate timing signals defining the exposure period).

Therefore, it can be seen that Masanaga et al. lacks a first exposure information generating circuit, which produces first exposure information which is incremented or decremented, based upon the determination results of whether a level of the image signal output from the image sensor is within a predetermined range.

It is noted that the exposure control of the first exposure section is "based upon the average luminance  $A_v$ ", but does not specifically disclose how it is performed. The office notes that exposure control based upon an average luminance is well known in the art, one such example is given in Mochizuki et al. (US 5,793,422). Mochizuki et al. teaches comparing an average luminance with a range, and altering the exposure time if the average luminance falls outside of that range (Figure 3). Mochizuki et al. teaches an exposure control system which uses determinations of whether or not a luminance

Art Unit: 2612

value is within a predetermined range, and adjusts the exposure time based on the determinations, this allows control of image intensity by changing the signal charge accumulation time (Column 18, Lines 52-54). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the exposure control system of Mochizuki et al. as the "Average Photometering" process of Masanaga et al. to allow control of image intensity by changing the signal charge accumulation time.

It can further be seen that Masanaga et al. lacks first and second exposure generating circuits, which use image signals output from the image sensor to produce exposure information. Instead, Masanaga et al. uses a photometric device (Figure 1, Item 33; Column 3, Lines 54-58).

The office notes that it is well known in the art that separate photometric devices are not a requirement since luminance data can be taken from the image sensor itself, one such example of this can be found in Mochizuki et al. where average luminance information is obtained using the image sensor (Figure 1, Item 2), a sample and hold circuit (Figure 1, Item 3) and a low-pass filter (Figure 1, Item 9). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use data collected from the image sensor rather than a separate photometric device to reduce the number of components in the camera (Official Notice).

**[claim 4]**

In regard to claim 4, note that the exposure information generating circuit of Mochizuki et al. includes an exposure decision circuit for determining, every

Art Unit: 2612

predetermined period, whether the level of the image signal output from the image sensor is within the predetermined range and generating a decision signal (Figure 4; Column 8, Lines 25-34); and

an up/down counter, connected to the exposure decision circuit, for performing an up count operation or a down count operation in accordance with the decision signal, and generating the first exposure information (Figure 4; Column 9, Lines 34-32).

**[claim 6]**

In regard to claim 6, although neither Masanaga et al. nor Mochizuki et al. specifically disclose drain and transfer pulses, the use of such pulses are well known in the electronic shuttering art. Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use drain and transfer pulses such as those claimed to drive the image sensor of Masanaga et al. in view of Mochizuki et al.

**[claim 9]**

Claim 9 is a method claim corresponding to apparatus claim 1. Therefore, claim 9 is analyzed and rejected as previously discussed with respect to claim 1.

***Allowable Subject Matter***

7. Claims 2, 3, 5, 7, 8, 10 and 11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

**[claims 2 and 3]**



In regard to claims 2 and 3, the prior art does not teach or fairly suggest a solid-state imaging apparatus including first and second exposure circuits in which the first exposure circuit determines whether a level of an image signal is within a predetermined range, where the predetermined range is defined by upper and lower limits.

**[claim 5]**

In regard to claim 5, the prior art does not teach or fairly suggest a solid-state imaging apparatus in which second exposure information is generated by a circuit which includes a timing calculation circuit for receiving the exposure information selected by a selection circuit and calculating second exposure information which specifies an optimum exposure time using the selected exposure information and the image signal.

**[claims 7, 8, 10 and 11]**

In regard to claims 7, 8, 10 and 11, the prior art does not teach or fairly suggest a solid-state imaging apparatus that generates a field during a vertical scan period and wherein the first exposure information generating circuit updates the first exposure information every vertical scan period.

***Conclusion***

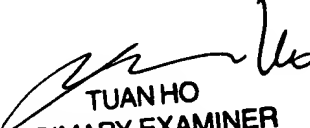
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J Henn whose telephone number is (703) 305-8327 or (571) 272-7310 after 28 February 2005. The examiner can normally be reached on M-F 9:00 AM - 6:00 PM.

Art Unit: 2612

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJH  
1/21/2005

  
TUAN HO  
PRIMARY EXAMINER